Honeywell Docket No. H0002800.34350 US- 4015
Buchalter Docket No.: H9945-3905

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: **Chi Tse Wu**

Serial No: **10/759444**

Filed: **January 14, 2004**

For: **SPUTTERING TARGETS, SPUTTER REACTORS, METHODS OF FORMING CAST INGOTS, AND METHODS OF FORMING METALLIC ARTICLES**

Examiner: **Rodney G. McDonald**

Art Unit: **1795**

DECLARATION UNDER 37 U.S.C. § 1.132

I, the undersigned, Susan Strothers, hereby declare as follows:

1. I am an employee at Honeywell International Inc. and am an inventor on the above-referenced application.

2. I have been informed that claims in the above-referenced application have been rejected under 35 USC §103 based upon US Issued Patent No. 6113761 (Kardokus). I believe that the rejection is inappropriate as follows:

3. Current claim 67 states: A three-dimensional physical vapor deposition target, comprising:

a material comprising one or more of Cu, Ni, Co, Ta, Al, and Ti; an average grain size of less than or equal to 250 microns within the material; a shape, the shape including at least one cup having a first end and a second end in opposing relation to the first end; the first end having an opening extending therein; the cup having a hollow therein; the hollow extending from the opening in the first end toward the

second end; the cup having an interior surface defining a periphery of the hollow and an exterior surface extending around the second end at rounded corners; and a sputtering surface defined along the interior surface of the cup, wherein the target is three-dimensional, monolithic and comprises a cast ingot.

5. The original specification discusses the issue of the average grain size within the material (see paragraph 0013). Specifically: "The improvement in deposited film uniformity that can be achieved with materials having smaller grain sizes has led to a desire to incorporate small grain size materials into the sputtering targets. It is found that small grain size materials can be formed within two-dimensional sputtering targets simply by subjecting the target materials to high compression during formation of the materials. Since the two-dimensional targets are essentially flat, high-compression technology can be readily incorporated into the processes of forming two dimensional targets. In contrast, it has proven difficult to form three dimensional targets having small grain sizes therein. It would be particularly desired to form monolithic copper targets having the complex geometries of the Fig. 2 and Fig. 4 target shapes, while also having a small average grain size."

6. The Kardokus reference is not an appropriate reference to use as analogous art in this case, because of this very reason – it is difficult and not intuitive to manufacture a three-dimensional target.

7. Methods utilized at the time of the filing date of the current application just were not the same as those methods being utilized to construct conventional three dimensional targets. One of the most significant hurdles was the inability to get the grain size of the materials in a three dimensional target down to the levels seen in two dimensional targets of the same materials.

8. At the time this application was filed – there was no appreciation or understanding in the art as to how that could be done.

9. The original specification also discusses in paragraph 0006 why it is so difficult to fabricate complex three dimensional targets, such as the Applied Materials,

Novellus and/or Honeywell three dimensional targets. The manufacture of these targets cannot be analogized to the manufacture of two-dimensional targets.

10. I hereby declare that all statements made herein of my own knowledge are true and that statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, Section 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Executed at Spokane, Washington, this 20th day of April, 11.

By: Susan Strothers

Susan Strothers

Respectfully submitted,

Buchalter Nemer, A Professional Corp.

Dated: 4/20/2011

By:

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Strothers,Susan D

Name:	Strothers,Susan D	Eid:	E128101
Title:	Fellow	Location:	Spokane, WA
Job Function:	Engineering	Country:	United States
SBG:	SM Specialty Materials	Band:	04
SBU:	HEM Electronic Materials	Service Date:	04-Mar-1991
SBE:	TCH2 SM Technology	Citizenship:	USA

Education

Yr of Completion	Degree/Education Lvl	Major/Field of Study	Minor/Specialty	School/Institution	Complete
1991	Doctorate or PhD	Metallurgical Engineering		Case Western Reserve Univ OH	Y
1985	Master of Science	Metallurgical Engineering		Case Western Reserve Univ OH	Y
1984	Bachelor of Engineering	Metallurgical Engineering		Case Western Reserve Univ OH	Y
	High School or Equivalent				Y

Awards/Patents/Recognitions

Date	Description
10-Jul-1991	Patent 5,143,590: Quantum Target Method
14-Aug-2001	US Patent 6,274,015 Diffusion Bonding
16-Oct-2001	Green Belt Certification
09-Jan-2002	Star Award for Code of Conduct Training
17-Sep-2002	US Patent 6,451,185B2: Diffusion Bonding
29-Apr-2003	US Patent 6,555,250 Ni Plated Diff Bond
22-Sep-2003	Bronze BRAVO -Driving Stage Gate Process
01-Dec-2003	DFSS Green Belt Certification
10-Aug-2004	HEM 2004 Qwest-Best Tool Use/Intel Alloy
08-Nov-2004	Bronze BRAVO - 2004 SM Tech Conference
10-Feb-2005	Silver BRAVO-Patent Portfolio Management
25-Mar-2005	Peer BRAVO for Tech Help Wire Extrusion
13-May-2005	Bronze BRAVO for VPD Involvement
25-Aug-2005	Bronze BRAVO for Quest for Excellence
19-Apr-2006	Gold Bravo - Copper Freedom to Practice
05-Nov-2006	Bronze BRAVO for EB Welding FTP
17-Nov-2009	US Patent 7,618,520 PVD Target Construct
03-Aug-2010	US Patent 7,767,043 Copper Targets
22-Oct-2010	Gold Band 4 Bravo Leading HEM Tech Team

Licenses and Certificates

Date	Description
01-Dec-2003	Green Belt Certification-DFSS
01-Jan-2004	Greenbelt for Growth Cert
21-Dec-2009	Personal Data Protection-Ldrs
18-May-2009	PER Leadership Certification

Honeywell Work Experience

Date	Title	Job Function	Band	SBG	SBU	SBE	Location
05-May-2008	Fellow	Engineering	04	SM	HEM	TCH2	Spokane, WA
01-Jan-2007	Manager Development	Technology R&D	04	SM	HEM	TCH2	Spokane, WA
31-Mar-2006	Manager Development	Technology R&D	04	SM	SM	TCH	Spokane, WA
01-Aug-2005	Manager Development	Technology R&D	04	SM	SM	TCH	Spokane, WA
23-Jun-2005	Manager Development	Technology R&D	04	SM	SM	TCH	Spokane, WA
01-Jan-2004	Manager - Development	Commercial	04	SM	SM	HEM	Spokane, WA
02-Dec-2002	Manager - Development	Commercial	04i	SM	SM	HEM	Spokane, WA
01-Jan-2002	Manager - Product	Operations	04i	SM	SM	HEM	Spokane, WA
01-Mar-2001	Manager - Product	Operations	04i		EMAT	WFM	Spokane, WA
11-Sep-2000	Manager - Business	Operations	04i		EMAT	WFM	Spokane, WA
17-Aug-1999	Director - Operations & Tech	Operations	04i		EMAT	WFM	Spokane, WA

Other Work Experience

Employer	Industry	From Date	Thru Date	Job Title	City	State	Country
CWRU/NASA-Lewis		15-May-1985	19-Nov-1990	Graduate Assistant	Cleveland	OH	USA
General Electric		15-Nov-1987	01-Mar-1991	Manufacturing Engineer	Cleveland	OH	USA
Johnson Matthey		04-Mar-1991	04-Mar-1992	Senior Development Engr	Spokane	WA	USA
Johnson Matthey		02-Mar-1992	01-Mar-1994	Production Manager - Targets	Spokane	WA	USA
Johnson Matthey		02-Mar-1994	01-Mar-1996	Operations Manager - Targets	Spokane	WA	USA
Johnson Matthey		05-Mar-1996	16-Aug-1999	Operations&Technology Director	Spokane	WA	USA